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FEAR AS A MOTIVATOR IN HEALTH CAMPAIGNS

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FEAR AS A MOTIVATOR IN HEALTH CAMPAIGNS: AN EXAMINATION OF FEAR APPEALS MESSAGING AND SKIN CANCER PREVENTION

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ABSTRACT

This thesis explored the use of fear appeals and efficacy statements on protective skin behaviors through the use of the Extended Parallel Process Model. The study explores whether high levels of fear and efficacy motivate individuals toward improved attitude and intention regarding healthy skin behaviors, specifically as it relates to sunscreen and overexposure. The results of this study did not directly support the tenants of the Extended Parallel Process Model. However, the study results did indicate a strong necessity for the existence of self-efficacy measures in preventive messaging in relation to skin cancer prevention. In every scenario of attitude and intention augmentation, self-efficacy alone successfully motivated change.

DEDICATION

This thesis is dedicated to my Mom and Dad. No matter how many times I have changed my direction in life over the past two years you have stood by my side and never doubted me for a moment (at least not out loud). You helped me alter major life plans, move to a new city and back (twice), and have done nothing but be supportive through the entire process. Thank you for helping me finally land in one spot and accomplish all my goals.

Dad, thank you for always being my biggest fan. You always believe in me no matter what and have taught me to never be down on myself. You trusted me to make my own decisions despite my ups and downs and taught me to go with my gut, so far that seemingly small lesson has served me better than any other.

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TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

Approximately 9,180 Americans died from melanoma in 2012, and one person dies from melanoma in the United States every 57 minutes (American Cancer Society, 2012). The National Cancer Institute (NCI) provides a list of seven cancers that are deemed the most common among United States citizens; however, melanoma is reported as the only cancer with increasing incidence. All other common cancers have declining rates as research leads to further medical developments (Howlader et al., 2012). More than 3.5 million instances of skin cancer are diagnosed every year in the United States. Breast, prostate, lung, and colon cancers rates combined do not exceed the amount of new skin cancer diagnoses every year (American Cancer Society, 2012). The three most common types of skin cancer are: melanoma, basal cell skin cancer, and squamous cell skin cancer (National Cancer Institute, 2011).

Melanoma, the most deadly type of skin cancer, occurs when cancerous growths form from damage to skin cells that create cell mutations and lead to rapidly growing tumors. The tumors begin in the pigment-producing layer of skin, which explains why this type of cancer often visually looks like a mole and typically ranges in color from brown to black. This type of cancer alone kills 8,790 people in the United States every year. Basal Cell Carcinoma (BCC) is the most common type of skin cancer. This is an abnormal growth of cells in the skin's basal cell layer, the outermost layer of skin. Visually, this type of cancer often looks like a pinkish to red sore, bump, or scar. While visually displeasing and potentially even disfiguring, this type of skin cancer almost

never spreads to deeper areas of the body nor is it ever life threatening. Finally, Squamous Cell Carcinoma (SCC) is an abnormal growth of cancer cells in the top layer of skin. Visually, this type of cancer often looks scaly or crusty. It may even occur in a wart-like growth on the skin's surface. This type of cancer can be fatal if not treated properly and allowed to grow uncontrollably. The commonality between all three types of cancer is that they are usually caused by overexposure to U.V. rays, and early treatment and detection is key to surviving skin cancer and avoiding disfigurement (The Skin Cancer Foundation, 2013).

The continued increase in skin cancer rates, while concerning, might imply that the prevalence of this disease will not ultimately be curbed through a medical discovery. Perhaps the remedy for this cancer lies in the hands of health care practitioners who disseminate information to members of the public who make daily decisions to expose themselves to the sun. Skin cancer could be prevented with increased health literacy and the dissemination of effective information regarding protective measures; the public may be able to stop skin cancer before it starts. With the high prevalence of skin cancer in the United States, research regarding new cutting-edge efforts to reach populations that perpetually and unknowingly expose themselves to U.V. rays without protection is necessary.

While skin cancer is the single most deadly cancer in the United States today, the disease is easily preventable by avoiding overexposure to U.V. rays. Knowledge that skin cancer is easily avoidable through proper measures justifies research efforts geared toward prevention. According to NCI, skin cancer affects more citizens in the United

States than any other cancer. Melanoma alone affects 68,000 people every single year. The National Cancer Institute (2011) also highlights the importance of preventive measures due to the recurrent nature of this disease. Once an individual has contracted skin cancer, the likelihood of contracting a second cancer increases greatly.

In addition to the generalized population-oriented information regarding skin cancer, many individual groups have particular susceptibility. In health promotion materials, these groups should be considered for targeted or specialized efforts. To properly understand reactions to messages, especially those involving fear appeals, researchers need to comprehend what causes fear appeal messages to succeed and fail (Witte, 1992). A major portion of that realization involves properly understanding the audience relevant to the issue. In particular, gender and ethnicity are major indicators for consideration. Understanding population-based risk is vital to crafting an effective health promotion campaign. Gender-based risk for melanoma, the most deadly of the three, correlates directly with age. Women 40 and younger have a one in 377 chance of contracting skin cancer, while men in the same age bracket have a one in 677 chance. Conversely, women over 40 have a one in 55 chance, while the odds of a man of the same age being diagnosed are much higher—one in 36. After age 40, the gender risk flips, with one in 36 women diagnosed, compared to one in 55 men (American Cancer Society, 2012). Ethnicity also plays a vital role in the existence of skin cancer. In Caucasian populations, approximately 40% of all tumor-related growths are skin cancer (Ridky, 2007). However, the prevalence is markedly lower with other populations. Skin cancer accounts for approximately 5% in Hispanics, 2% in African Americans of a darker

skin orientation, and 4% of Asian populations (Gloster & Neal, 2006). The rationale behind this difference is that darker skin has a "photo-protection" that is almost twice as protective as white skin (Montagna & Carlisle, 1991). Clearly the U.V. radiation that is such a major factor in skin cancer cell development for Caucasian populations is not nearly as concerning for darker skin types (Bradford, 2009).

FearAppeals

As identified by over 55 years of study, fear appeals are an ongoing persuasive tactic employed to foster healthy behaviors (Boster & Mongeau, 1984). Witte defines fear as "a negatively valanced emotion, accompanied by a high level of arousal" (Witte & Allen, 2000). Fear as an emotion is stimulated when the mind perceives a seriously relevant threat to the individual or to something for which the individual strongly cares (Witte, 1994). Self-rated fear provides a fairly accurate synopsis of the emotional state (Rogers, 1975).

Fear is defined as an emotion rather than a cognition, meaning fear is a reactive measure. Without an initial trigger, fear will not happen. In this case, threat is the trigger for fear to occur. This distinction is an important component when operationalizing fear and threat as two distinct units (Witte & Allen, 2000). Fear levels increase in relation to the level of threat perceived. Perception of a significant and relevant threat is what evokes the emotion of fear; the reaction is causal in nature. The most simplistic method for understanding the relationship is to categorize threat as entirely external and fear as entirely internal. The external affects the internal, resulting in a physical or emotional reaction. If an individual perceives something as threatening (e.g., a doctor informs a

patient that without immediate smoke cessation he or she will likely die of cancer), then this information threatens the patient's life. In turn, this makes him or her feel the emotion of fear. Fear often gives the victim feelings of panic, anxiety, nausea, accelerated heart rate, or perspiration. The more relevant and significant a threat is to an individual's life, the greater the physiological and psychological impact (Witte, 1992).

Since Aristotle's time, scholars have worked to manipulate and comprehend fear appeals in order to utilize the concept as a motivational tool (Sprinkle, Hunt, Simonds, & Comadena, 2006). By accurately assessing audience needs and the constructs of fear appeals, scholars can utilize different components to accurately motivate audiences in a manner that relates to their perceptions of an issue. In this scenario, fear appeals should be manipulated to motivate protective skin measures. Aristotle and other scholars worked to properly comprehend fear appeals so that they could utilize them in a way that would effectively impact the audience. The Extended Parallel Process Model (EPPM) incorporates these considerations by assessing the outcomes of different messaging tactics. Health messages often contain much information that strikes fear into the population. This fear causes a variety of reactions based on very individual factors. Misappropriated fear can cause a person to behave in a defensive manner that leads to completely avoiding the health issue and refuting that fact that a potential risk exists (Millar & Houska, 2007). The operationalization of fear appeals is not a new concept.

According to Witte, "fear appeals are persuasive messages designed to scare people by describing the terrible things that will happen to them if they do not do what

the message recommends" (Witte, 1992, p. 329). Another definition provided by Witte at a later date reads,

> A fear appeal is defined as a persuasive message that attempts to arouse the emotion or fear by depicting a personally relevant and significant threat and then follows this description of the threat by outlining recommendations presented as feasible and effective in deterring the threat (Witte, 1994, p. 114).

As both of these definitions explain, fear appeals serve to "scare" an audience into complying with some sort of recommendation, in many instances an augmentation of a health behavior.

Fear appeals can be defined in one of two ways, by the content of the message or by the audience's reaction to the message (O'Keefe, 1990). An important notation is that literature on fear appeals is inconclusive at best (Bastien, 2011). Considering the inconclusive nature of the past research, this thesis will seek further clarification and understanding of fear appeals by utilizing the methods presented in the EPPM. Some fear appeals may have gruesome language with extreme gore (Witte, 1992). Just because an appeal is gruesome does not mean it will automatically elicit fear; alternative methods can be used to arouse just as much fear without gory pictures and terrifying images. This demonstrates the difference between message content of fear appeals and audience reactions to fear appeals (O'Keefe, 1990). A strong fear appeal should elicit a threat to the audience, and by association, the audience should perceive a large threat, as well as a procedure for deterring the threat from occurring. Various studies outline a variety of different findings in regards to the outcomes of fear appeals (Bastien, 2011). The

formation of fear appeals centers around the three pivotal constructs of fear, threat, and efficacy (Witte, 1992).

Constructs of Fear Appeals. While fear is discussed above, understanding the exact definitions of these constructs is critical when attempting to properly implement them in a health promotion message. First, fear is most importantly an emotion (Witte, 1992). While persuasive appeals have historically attempted to utilize a wide variety of emotions, fear is the best tested and studied (O'Keefe, 1990). Fear is a completely subjective experience determined by the level of physiological and psychological arousal on the part of the person subjected to a threat. Threat, as mentioned above, is directly connected to fear. Threat is an environmental danger perceived by the individual, which thus evokes the emotion, fear. Efficacy, the third construct involved in fear appeals, is comprised of two parts: response efficacy, or the effectiveness of the message, and self-efficacy, or the recipient's self-perceived abilities. By definition, these terms refer to how effective the recommendation is in actually avoiding the perceived threat and the individual's capacity for realistically implementing recommendations to avoid the threat, respectively (Witte, 1994). In sum, a threat evokes fear, which allows the individual to respond based on their response efficacy and self-efficacy perceptions.

Fear and Skin Cancer. The use of fear appeals in health messages may be an effective method to convince the population to adopt protective behaviors. EPPM uses fear and efficacy in combination to produce desired behavior. Little research regarding skin cancer prevention and the EPPM exists to date. However, the effectiveness of the EPPM in other studies requiring fear and efficacy to motivate populations exists in

studies such as Sprinkle et al. (2006) and Mormon (2000). Sprinkle et al. saw increased learning outcomes through high levels of fear and efficacy through teacher use in the classroom. Mormon's study was also consistent with the tenants of the EPPM. Fear appeals, a key component of EPPM, have been used to aid in many serious health issues and preventive measures. A few health behavior augmentations attempted through EPPM include condom usage to prevent HIV, flossing for dental hygiene, self-exams to identify breast cancer, reduction of drinking and driving, and exercise promotion (Witte & Allen, 2000).

Theoretical Framework: Extended Parallel Process Model

Many health behavior change models exist and have been tested during the past few decades; the accumulation of knowledge and results of these behavior change models and research endeavors are what informed the development of the EPPM. The Parallel Process Model by Leventhal (1970) that involved danger and fear control frameworks served as a foundation for Witte's expansion to the EPPM (Witte, 1994). The EPPM would not exist without the groundwork of such previous models, and without a doubt owes a great deal of its fundamentals to these pre-existing models; however, EPPM has many distinct differences that make it an innovative behavioral change model (Witte, Berkowitz, Cameron, & McKeon, 1998). Past fear appeals research has led to a series of unorganized and inconsistent findings. The EPPM seeks to organize and clarify past research findings into a cohesive message design theory. The framework offers a unique blend of past research, assessments of possible causes for failure of fear appeals, and predictive ability regarding responses to fear appeals (Maloney, Lapinski, & Witte,

2011). Despite the overabundance of past efforts toward behavior change, the EPPM appears to be effective in altering health behaviors across a variety of populations and range of health issues. The success of the EPPM thus far warrants its potential usefulness in a campaign promoting skin cancer prevention (Stephenson & Witte, 1998).

In an attempt to compile and rationalize the findings of many fear appeals studies, Witte (1992) formulated the EPPM as a consolidation of pre-existing work as it related to fear appeals, both in research and theory development (Maloney et al., 2011). The three major responses that this model predicts through the use of fear appeals are: (1) The individual enacts the proposed behavior change; (2) The individual does not respond at all; or (3) The individual completely rejects the behavior change. The importance of these three outcomes in relation to theory development exists because other similar theories did not focus on the after-effects of a fear appeal. Instead, they mostly examined degrees of attitude or behavior modification. This model allows for emotion to play a key role in fear being a motivator or an inhibitor to behavior change. Most other models do not incorporate or consider the powerful use of human emotion (Witte, 1992). This close examination of an individual's reaction to fear appeals, rather than just focusing on the overall behavior change, provides researchers with invaluable knowledge about the effects each particular appeal has on the human psyche. This knowledge may allow the researcher to manipulate fear appeals more effectively

Health Belief Model

The Health Belief Model will serve to supplement and provide additional resources for message construction as it directly pertains to a health study. This model

assesses many of the same tactics as the EPPM, such as perceived efficacy and susceptibility to the threat. However, the Health Belief Model also incorporates a manipulation and exploration of the "perceived barriers to action." This portion of the model helps the researcher better understand limiting factors in the audience's world that may impact his or her ability or desire to participate in protective skin measures outside of the fear- and efficacy-related motivations. This model, while not the foundational component of this study, helps frame a proper understanding of the audience and complements the basic tenants of the EPPM. While fear and efficacy tactics can be effective, if not properly targeted at the audience, such techniques may not properly translate to the audience's lifestyle or opinions. The Health Belief Model will allow for a general understanding and assessment of the audience and will also provide helpful guidelines in the assessment of success following the distribution of promotional messaging.

The Health Belief Model is one of the oldest and most widely used frameworks for health communication campaign development. Social psychologists formulated the theory in the 1950s in an effort to better determine why more of the general public was not involved in disease-prevention programs. The theory seeks to understand why individuals are willing (or not willing) to participate in prevention programs. The Health Belief Model indicates that while campaigns may indicate a desired course of action for the audience, individuals still need to have a reason to believe the messaging, understand why it is worthwhile to their personal lives, and believe that recommended measures will actually have an impact on health outcomes (DuPré, 2010).

The U.S. Department of Health and Human Services (2012) offers a detailed explanation of the six components associated with the Health Belief Model and how they best influence health communication campaign development and implementation. The first component involves perceived susceptibility; this refers to an individual's perception of risk involved in a particular health situation, the recommended course of action, or "change strategy" to effectively target information toward population characteristics in an effort to craft an appropriate perception of susceptibility. The second concept is perceived severity, which refers to an understanding of the seriousness of a health situation. To appropriately manage audience perceptions of severity, strategies should accurately explain the outcomes of a health situation and the impact of any recommendations. Perceived benefit is the third concept of the Health Belief Model. Perceived benefit is the manner in which an individual perceives that a recommended action would reduce the risk of a health threat. The related change strategy should expand upon the positive results associated with any recommended health action. Perceived barriers expand on the potential opportunity cost of incorporating a recommended health strategy. To combat these concerns, a campaign should provide assistance, debunk myths, and potentially provide motivational incentives. Self-efficacy is the final component of the model; this refers to perceived ability to actually participate in the recommended action. Change strategies should offer coaching and guidance to boost confidence. Goal setting is an effective method for boosting self-efficacy as well as providing examples and demonstrations of efforts (DuPré, 2010).

The Health Belief Model provides a variety of scenarios that are helpful in audience assessment and need determination. While the EPPM provides an effective message design framework, it is vital to properly assess the audience and implement health campaign strategies in an appropriate manner. The Health Belief Model incorporates many of the ideas and concepts presented in the EPPM while also providing "change strategies" that guide message design and implementation strategies. These guidelines and recommendations will be helpful during the audience assessment and design of the health promotion materials that will be used in this study.

Summary

This study seeks to determine the best methods for influencing health behaviors, particularly those that relate to skin cancer prevention. While incorporating the tenants of the EPPM in consideration of the health campaign development strategies associated with the Health Belief Model, this thesis seeks to determine how fear and efficacy affect participants' willingness to participate in protective skin behaviors.

CHAPTER TWO

REVIEW OF LITERATURE

Considering the growing rates of skin cancer in the United States reported by the American Cancer Society, both governmental and private agencies have made attempts to better educate the public about the dangers of and best practices for prevention of skin cancer. The efforts that motivate these campaigns originate from the knowledge of the causes of cancer. While often disfiguring or even deadly, this disease is preventable. Melanoma, the most deadly type of skin cancer, has been shown through epidemiological studies to occur as a result of direct association with ultraviolet (U.V.) radiation (The Skin Cancer Foundation, 2013). Therefore, prevention efforts targeted at education surrounding the association between U.V. exposure and skin cancer are an integral facet of these campaigns. The Center for Disease Control and Prevention provided a report to Congress in 1993 that stated skin cancer rates can be reduced through prevention efforts targeted at specific risk factors, most notably, U.V. exposure (Graffunder et al., 1999).

These rationalizations provide motivation to create preventive messaging and education efforts surrounding skin cancer; the fairly simplistic measure that virtually guarantees avoidance of the disease is avoiding U.V. exposure, thus campaigns promoting education and motivation are both practical and necessary. This foundational understanding of the major cause of skin cancer helps health communication experts establish methods to provide individuals with the ability to make proactive changes. The following studies provide a point of reference for efforts already accomplished; they specify established best practices and potential avenues of exploration for this thesis.

The EPPM provides the foundation for messaging in this study. Witte (1992, 1994) provides a framework that focuses on the combined influence of threat and efficacy as motivation for partaking in recommended health measures. In accordance with this theory, high levels of threat coupled with high levels of efficacy serve as the most effective catalyst for motivating audiences to implement recommended health behaviors. Additionally, a proper balance must be crafted between threat and efficacy levels to avoid over stimulating the fear emotion and thus causing the audience to dismiss the message to avoid feelings of uncontrollable risk and fear. While the studies below do not utilize the EPPM in its entirety, they provide a springboard of tactics used in previous campaigns, particularly as it relates to building efficacy through education.

Prevention Campaigns

The Falmouth Safe Skin Project: Evaluation of a Community Program to Promote Sun Protection in Youth (FSSP) was a skin cancer-based prevention campaign conducted in Falmouth, Massachusetts, that was implemented on a community level, with the goal of improving protection practices, knowledge, and attitudes. While the researchers encourage cautious interpretation of their findings, the results did suggest effective changes in promoting skin cancer prevention behaviors. Miller, Geller, Wood, Lew and Koh (1999) emphasize the notable difficulty in changing the habitual behaviors of individuals and suggest assessment of environmental, social, and attitudinal factors associated with the issue. FSSP took a holistic approach and implemented concepts from behavioral theories, such as understanding the thought process of the target population, addressing perceived barriers, and reinforcement through repetitive environmental and

social messages. This study assessed the amount of change from an initial survey to the time of a follow-up survey after the campaign. Overall, results showed improvements in sun protection knowledge, attitudes, and practices, as well as a major reduction in sunburns. Most relevant to this study is the increase in reported protection measures: participants reported increased use of sunscreen. This program primarily relied on education, which builds the self-efficacy of individuals. Sun protection materials and messaging were distributed at target intervention sites (Miller et al., 1999). The success of this study emphasizes the importance of properly understanding the audience, as well as the necessity of appropriately educating the audiences so that they have the knowledge and confidence to make informed choices in regards to skin protection. In the crafting of messages for this study, the importance of educating the audience as a means of developing self-efficacy should not be neglected.

One study conducted by Buller and Burgoon (1996) called "Sunny Days, Healthy Ways" created a curriculum with five interdisciplinary units for students in Tucson, Arizona. The materials incorporated background knowledge regarding the properties of the sun and composition of the human skin, in addition to methods for limiting sun exposure. The students exposed to this intervention reported utilizing protective measures at a higher rate than control groups; in addition, the intervention groups had lighter skin tones compared to the control groups. Additionally, Buller and Burgoon (1999) conducted a study based on social cognitive theory in Arizona called "Sunshine and Skin Health." This program consisted of teaching students about the sun, skin, and attitudes toward tanning, skin cancer, and sunlight awareness. Students exposed to this knowledge

reported higher use of sunscreen in the wintertime and increased avoidance of tanning than the control group. These results again suggest the importance of education in developing self-efficacy in participants.

Primarily, prevention campaigns across the board seem to focus predominantly on education in an effort to promote improved protective measures. Additionally, while some interventions claim the use of social cognitive theory as a foundational component, the majority of campaigns seem to claim influence from the umbrella term "behavioral theories" or claim no theoretical backing at all. While these campaigns seem to be taking steps in the right direction, they lack solidified guidelines for increasing preventive measures. All intervention attempts are a conglomerate of ideas, theories, and practices aimed at increasing skin protective behavior lacking consistent method or application.

Fear appeals, the foundation of this thesis, are never mentioned or utilized in any previous skin cancer prevention studies. All documented efforts, as outlined above, focus on education as a primary method of behavior change. Stephenson and Witte (1998) came to a similar conclusion in their study,

> A review of the campaign literature revealed that none have employed the use of fear to motivate changes in behavior. First, there are a limited number of scientific evaluations of skin cancer interventions in literature. Much of the scientific literature examines causes of skin cancer, while other articles explain how the skin can be protected. Still other preventative efforts in the form of fliers and pamphlets have not been empirically evaluated for their effectiveness. A second reason for the lack of fear in skin cancer campaigns is that early studies of fear

> and risk demonstrated that scaring people backfired and therefore was an ineffective means of persuasion. (p. 3)

Many health promotion campaigns are based on scaring individuals into a desired behavior; scholars assert that this is ineffective in the realm of health study. Across the board, researchers make similar claims that scaring individuals into healthy behaviors should be avoided (Hill, Chapman, & Donovan, 1998). According to Witte and Allen (2000), despite proven success of fear appeals across a variety of platforms, health promotion specialists continually claim that fear appeals backfire. However, regardless of skepticism regarding the use of fear appeals in persuasive health messages, recent advances have provided evidence that the proper utilization of fear appeals in health promotions can be effective in behavior change (Witte, 1992). Stephenson and Witte (1998) conducted a study utilizing fear appeals in an effort to increase protective skin behaviors targeted at preventing skin cancer. The success of that study further justifies the exploration of fear appeals in coordination with a health-related campaign, despite the traditional aversion to the method. Thus, this evaluation of the tactics implemented (or not implemented) in past campaigns related at improving protective skin behaviors provides a solid foundation for understanding best practices and areas for further exploration. Conclusions point toward an effort that focuses on building self-efficacy of the audience through education and the consideration of perceived barriers, as well as the proper implementation of fear appeals.

Fear Appeal Theory: The Extended Parallel Process Model

Fear appeal theory is wrought with controversy throughout the history of the field

of communication studies. Witte et al. (1998) address the fact that while research suggested that fear appeals can be an effective means of persuading audiences, research is conflicting, and these methods have been known to fail. Witte (1992) assessed the rationalizations for conflicting results in research related to fear appeals. She provides three distinct rationalizations for the discord surrounding this topic. Primarily, terms related to fear appeals that have distinctively unique meanings have been utilized in a flawed, interchangeable manner. Terminology must be effectively defined and understood to produce accurate outcomes if literature surrounding this topic is to develop consistency. An additional issue is that explanations of fear appeals mainly focus on the message acceptance process and not message rejection. In order to understand why fear appeals are at times ineffective, scholars need to assess the reasoning involved when an audience rejects a fear appeal. Finally, the theoretical rationalizations for effective interaction of fear and efficacy are not thoroughly understood. Thus, the Extended Parallel Process Model can assess the "cognitive and emotional mechanisms underlying the success and failure of fear appeals" (Witte, 1994, p. 113).

The EPPM is founded on the historical compilation of over 40 years of fear appeals research. Of notable incorporation into the model, Witte (1994) makes reference to Leventhal's (1970) danger control and fear control framework. Notably, Witte and Allen (2000) thoroughly explain the classical roots of this model. The segment of the model that explains the causes for effectiveness in fear appeals stems from Leventhal (1970), while the portion that explores the motivations for failure of fear appeals originates with two fear appeals scholars who influenced Witte's work (Janis, 1967;

McGuire, 1969). This model is the most up-to-date fear appeal theory used to assess the causes and rationalizations of the success or failure of fear-motivated messages (Gore & Bracken, 2005).

Essentially, the EPPM compiles and extends past research to explicate responses individuals have when exposed to a fear appeal message; the theory then places the responders into three categories: non-responders, danger control responders, and fear control responders. The EPPM postulates that interactions between perceptions of threat and perceptions of efficacy to avoid the threat allow for predictions about which responder category an individual will most closely align with. Overall, the EPPM provides an assessment and prediction of three potential responses: attitudinal, intentional, and behavioral, depending on the manipulation of fear and efficacy constructs in a fear appeals message (Maloney et al., 2011).

Fear appeals are an integral facet of the Extended Parallel Process Model. The majority of the fear appeals research evidenced in the EPPM was influenced by O'Keefe (1990). The differentiating factor in fear appeals research is message content and audience reaction; fear appeals can stem from either or both as an original motivator (O'Keefe, 1990). An audience reaction would indicate a threat perception on the part of the participant; fear appeals researchers attempt to make the consequences evident in the fear appeal extremely applicable to the participant, thus making the threat real. In accordance with the goals of health promotion, threats are supplemented by a recommendation that appears to be a plausible solution to the problem. This interaction creates the central constructs in fear appeals research: fear, threat, and efficacy (Witte,

1992).

Fear. Fear is defined as "a negatively valance emotion, accompanied by a high level of arousal, and is elicited by a threat that is perceived to be significant and personally relevant" (Witte, 1992, pp. 330-331). Fear as an emotion is stimulated when the mind perceives a seriously relevant threat to the individual or something for which the individual strongly cares (Witte, 1994). In attempting to determine how to measure fear, some researchers believe that self-reporting mood adjectives are the most common measure of fear due to the correlation of physiological arousal and the adjectives chosen. Self-rated fear provides a fairly accurate synopsis of the emotional state (Rogers, 1975). Witte refers to the originators of fear appeal research to claim that through the progression of understanding of fear appeals, fear can be operationalized as feelings of anxiety or anxiousness (Mewborn & Rogers, 1979).

Efficacy. Efficacy is comprised of a trifecta of factors that determine the potential aversion of a threat; the helpfulness, practicability, and simplicity of a response all influence the efficacy levels of a recommended response (Witte, 1994). Two components construct the concept of efficacy: response efficacy and self-efficacy. Response efficacy is the success of the recommendation in deterring the threat, while self-efficacy is a reference to an individual's personal capacity to implement the recommended response (Witte, 1994). The concept of efficacy originates from social cognitive theory and means the ability to manufacture desired outcomes and avert undesired outcomes. As perceived self-efficacy increases, the chances of an individual beginning to practice suggested healthy behaviors correspondingly rises (Bandura, 1995).

Efficacy, at times, exists in the form of an environmental or message cue; in these circumstances, perceived efficacy may be influenced. Specifically, perceived efficacy suggests cognitions are in direct relationship to response efficacy. While response efficacy is the success of the recommendation, perceived efficacy is the audience's assessment of whether or not a recommendation successfully averts the threat (Witte, 1992).

According to Mormon's (2000) research regarding efficacy and motivation for men to perform testicular self-exams, men exposed to high efficacy messages had greater intention to perform the self-exam. Amongst the wide range of health communication theories and frameworks, the variable of self-efficacy has received high levels of attention and research (Quick & Bates, 2010).

Threat. At a fundamental level, a threat is a hazard that exists in the environment whether or not an individual is cognizant of the hazard's existence. Notably, an actual threat is different than a perceived threat. A perceived threat is when the mind recognizes a threat whether or not one exists (Witte, 1994). Witte elaborates that her assessment of fear appeals research indicates that perceived threat is critical during the persuasion process. This facet of threat is formulated with two components: perceived severity and perceived susceptibility to the threat. These react to the level of aggression in a situation and personal risk due to individualized circumstances (Witte, 1994).

Threat plays an important role in the development of fear appeals because these messages are only successful if the audience is convinced that they are actually extremely

vulnerable to the penalties that would come from the perceived threat (Maloney et al., 2011).

Perceived severity involves how much risk an individual feels about personally experiencing the threat. Perceived susceptibility refers to the amount of actual harm the individual expects from the threat. Fear and threat are separate constructs that are uniquely related because the higher the level of perceived threat, the greater the increase of fear the individual will feel (Witte & Allen, 2000). Understanding the role that threat plays in fear appeals allows for the realization that according to the EPPM, the actual threat presented by a message is not important, but the individual's perception results in action. Figure 1.1 depicts the constructs of the EPPM.

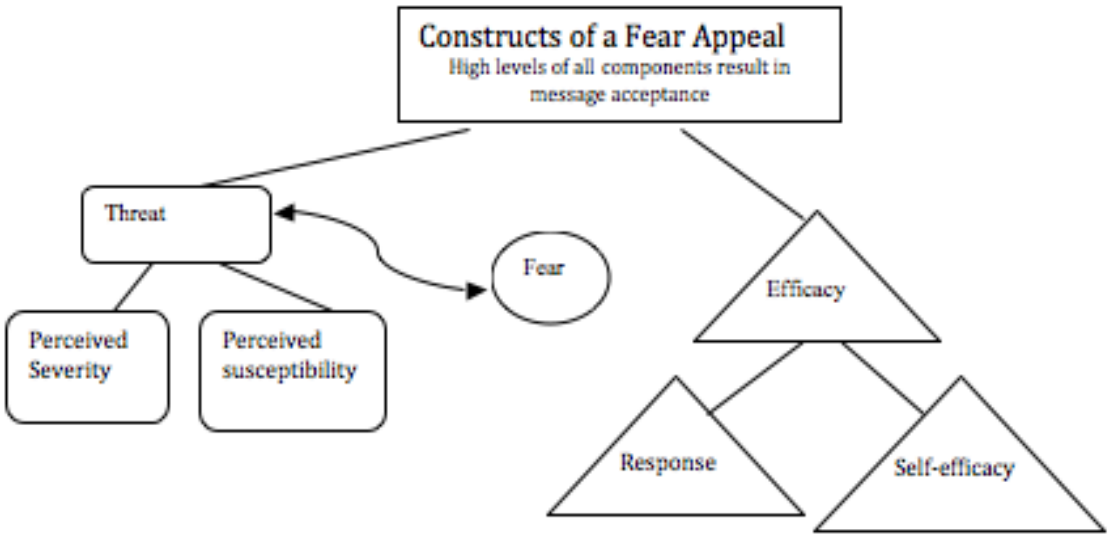

Figure 1.1

Interaction Effects. Witte (1992) indicates that a fear appeal is two-fold: one component involves the threat and the other component is comprised of a recommended

response. According to Stephensen and Witte (1998), both components of the fear appeal are assessed on their own; an individual will examine the threat as well as the response action on each one's respective validity. The first portion of the fear appeal to be appraised is the threat, which is measured by how severely the message threatens the individual (e.g., 1. Skin cancer will give you discolored skin tones; or 2. Skin cancer will cause you a painful death). Additionally, individuals assess the threat susceptibility of the message (e.g., 1. You work indoors and rarely go to the beach for vacation; or 2. You are a lifeguard and spend eight hours in the sun every day). If the threat levels are alarming to the individual, he or she will move on to assess the efficacy levels in the message that appear in the recommended response. The reader will consider the response efficacy of the message (e.g., 1. Sunscreen has the potential to reduce the risk of skin cancer; or 2. If I actively use sunscreen on a regular basis, I will not get skin cancer). Finally, the self-efficacy component of the message will be assessed (e.g., 1. Sunscreen is difficult for daily use; or 2. Most cosmetic companies make affordable and scent-free moisturizers that will easily protect you from the dangerous U.V. rays). As the individual reads and gauges the fear appeal in sections, he or she has the ability to respond in a variety of ways, depending on the connection and impact of the message.

The EPPM postulates that an individual's choice to adopt behavior in response to a fear appeal message is entirely dependent on the level to which the fear appeal raises the perception of threat; however, the action taken is dependent upon the level of perceived efficacy that the individual can successfully avoid the threat (Maloney et al., 2011). Basically, the response to the fear appeal depends on the threat assessment and the

perception of efficacy. During a threat appraisal, the individual is concerned with the severity of the threat and his or her susceptibility to actually having the event occur. Fear appeals messages can fail if the audience is not under the impression that they are at risk, do not view the particular scenario as serious, or do not see themselves as capable of averting the threat (Thesenvitz, 2000).

Once exposed to a fear appeal, the audience begins processing the information, and one of three unique responses may occur. As discussed above, the audience will initially begin a threat assessment to decide if the perceived threat is actually severe enough to warrant consideration and if their own personal susceptibility necessitates further information seeking (Maloney et al., 2011). The EPPM predicts one of three responses when an audience is exposed to a fear appeal: 1. No response, 2. Danger control, or 3. Fear control (Witte et al., 1998). In some scenarios, the audience will simply not respond to a fear appeal message. If the audience views the threat as inconsequential or frivolous, the audience then has no need to continue assessing the message or consider options for managing the fear through recommended actions. In this situation, the efficacy component of the message is only evaluated on a shallow level or potentially ignored. Notably, if efficacy is not discussed in the recommendations of a fear appeals message, the audience will draw from past experiences that are relatable to the topic to create perceived efficacy levels (Witte et al., 1998). If the audience does not perceive a high threat, the fear emotion is never induced. If the individual never experiences fear as a result of the threat, the assessment is over and the audience will not respond to the message (Maloney et al., 2011).

Fear control responses occur when an individual does not feel as if he or she is able to implement the recommended responses. The individual still perceives threat as real and suffers from fear as a result of the message, but does not feel confident in taking strides toward adopting the solution due to low self-efficacy. The low self-efficacy may be a result of difficulty, cost, time constraints, etc. Instead of adopting a response option, the individual will implement fear control responses. In this instance, the individual ceases to control the external fear (skin cancer or some other threat), and focuses on controlling the emotion of fear by avoiding thoughts about the threat. This scenario is a result of high perceived threat in coordination with low perceived efficacy (Witte et al., 1998). When fear and threats are overwhelming, audiences will choose to avoid the message instead of responding. Audiences fail to respond to a message through defensive motivation when fear levels grow too high; this occurs when the perceived threat is extremely elevated and perceived efficacy is very low. The audience will then reject the message and avoid the scenario. This is a defensive avoidance response and is triggered by the audiences' over abundance of fear and lack of ability to manage the fear through action (Witte, 1994).

Danger control processes result when an individual perceives a threat that is both relevant and severe; this understanding of a real threat enacts fear. The newly elicited fear response causes the individual to seek a method for suppressing the emotion and thus reducing the fear. Once this initial assessment of threat occurs and is deemed both relevant and real, the audience assesses the efficacy of the situation. This second part determines if the danger control response will be enacted. If the message provides a

method for handling the fear in a manageable way, the audience will feel that it can successfully avoid a very relevant threat simply by adopting the recommended measures. High perceived efficacy in coordination with high perceived threat elicit danger control responses (Witte et al., 1998). “The cognitions occurring in the danger control processes elicit protection motivation, which stimulates message acceptance responses such as attitude, intention, or behavior changes that control danger” (Witte, 1994, p. 115). Well-regarded fear appeals researchers that motivated Witte’s research, such as Rogers and Mewborn (1976) and Kleinot and Rogers (1982) indicated that high levels of fear in coordination with high levels of efficacy evoked the greatest levels of message acceptance. The major distinguishing factor between danger control and alternate reactions to a fear appeal is that danger control acts to control external apprehensions, while threat control and defensive avoidance responses seek to quiet internal fears such as heightened emotions of fear (Witte, 1994).

The EPPM allows for two responses that “fail” and one response that succeeds. The “no response” reaction and the fear control reaction do not succeed in encouraging the audience to implement the recommended measures due to either overuse of threat and underuse of efficacy, or the presentation of threat that is so low, the audience dismisses the conversation. The goal of this thesis is to encourage individuals to enact the recommended measures of adopting protective skin practices after understanding the threat of skin cancer due to overexposure to U.V. rays. This study aims to elicit danger control responses from the audience based on Witte’s research that indicates that this is the best method for encouraging audiences to implement recommended responses. Figure

1.2 provides a depiction of the theory based on Witte (1992, 1994).

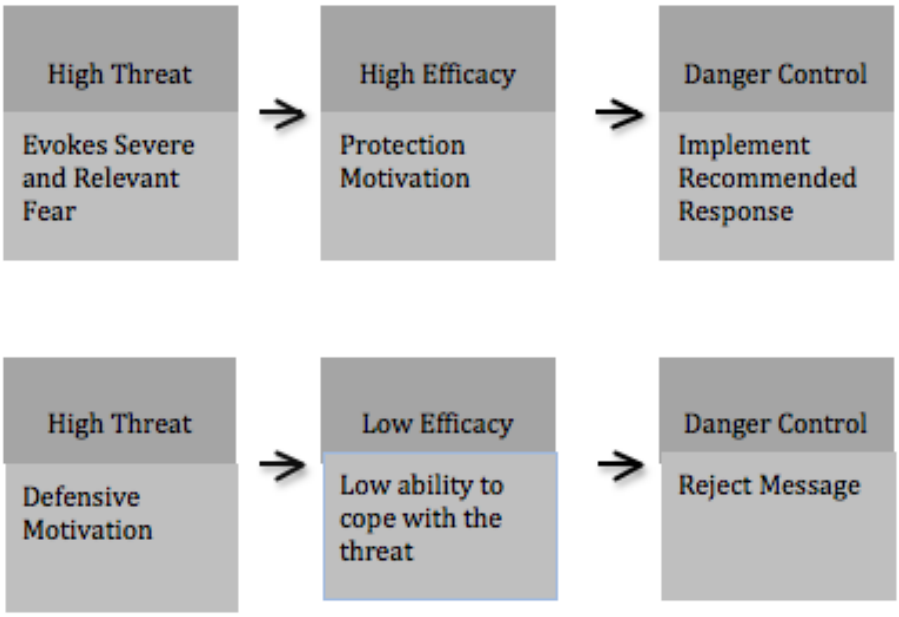

Figure 1.2

Finally, the EPPM suggests that the relationship between threat and efficacy is multiplicative by claiming that high threat in coordination with high efficacy initiate danger control and positive change outcomes; the outcomes elicited in this scenario are positive alterations in attitude, intention, and behavior. Accordingly, high threat in coordination with low efficacy sparks fear control and negative change outcomes; the outcomes elicited in this scenario include defensive avoidance. The two-part nature of the fear appeal means that perceived threat is directly responsible for the strength of emotion associated with the acceptance or rejection of the message, but perceived efficacy determines the reaction to changes, such as which process is initiated, either fear or danger control (Witte, 1994).

Theoretical Validation

With the perpetual controversy over the use of fear appeals in health-related campaigns, the justification of the EPPM as a valid theoretical model for this study is important. As mentioned previously, Witte drew from hundreds of years of theories and scholars' research to create this model. Despite inconsistencies among fear appeals research in the past, this model is relatively new but is being widely tested and is increasingly supported by scholars in the field.

Witte et al. (1998) created a fear appeal campaign based on the tenants of the EPPM to decrease the spread of genital warts. The results demonstrated that fear appeals can be effective if they prompt strong perceptions of both threat and fear and provide the audience with highly perceived efficacy in coordination with the response option. Additionally, the EPPM was used to raise the intention of agricultural workers to wear hearing protection while working (Smith et al., 2008). The EPPM has also been utilized to examine the effects on smoking cessation intentions (Wong & Cappella, 2009). The initial test of the model involved the threat of AIDS with the response option of condom usage. This test served as initiation validation for the theory (Witte, 1992). The perpetual utilization of this theory in the health promotion field indicates its success and suggests that the theory is worthy of consideration in fear appeals research based in a health communication context.

Across the field, Witte's model has been tested and implemented in a variety of health contexts; however, only once has the model been utilized in relation to skin cancer prevention. Stephenson and Witte (1998) conducted a study about the impact of fear,

threat, and efficacy in relation to skin cancer prevention. The results of this study validated the foundational tenants of the EPPM. The authors indicate that fear appeals messages that follow the guidelines of the EPPM are effective in health promotion campaigns related to skin cancer, which was a previously uninvestigated sector. Depicting scary scenarios that outline the terrible effects of overexposure to the sun with unprotected skin was highly successful when those threats were combined with a high efficacy response that provided a simple and effective solution.

The success of this study coupled with the growing prominence of the EPPM in other sectors of health communication present a unique opportunity to continue filling a gap in the literature about the topic of skin cancer and fear appeals through the vehicle of the EPPM. Witte and Stephenson's study provides foundational groundwork and knowledge for this research endeavor, and the limitations and suggestions of their research will be considered and implemented in the methodology of this thesis.

Justification for Fear Appeals in Health Communication. Fear appeals have a long history in a variety of scenarios separate from the field of health communication. Daily encounters often involve fear appeals, from religious perspectives to safe driving habits; despite the prevalence of the method, scholars continue to debate the relevancy and ethics involved when scaring people into good health.

Scaring people into changing their behaviors is a popular persuasive strategy. Physicians threaten illness if patients do not comply with their regimens. Ministers threaten hell if parishioners do not seek forgiveness. Advertisers threaten imminent social demise if the advocated toothpaste, shampoo, or deodorant is not used. Sometimes scare

tactics, formally called “fear appeals” succeed, and other times they fail. What are the processes underlying the success or failure of fear appeals? One recently developed theory that addresses both when and why fear appeals work, as well as when and why they fail, is the Extended Parallel Process Model (Witte, 1994, p. 113).

Fear appeals research has been inconclusive and debated throughout the field of communication studies, particularly as it pertains to health-related research. Health researchers in particular continue to claim that fear appeals fail repeatedly (Witte & Allen, 2000). Witte (1994) asserts that these inconsistencies are often due to the fact that researchers have solely focused on what leads to success in fear appeals and have overlooked the factors that lead to fear appeal failures. The EPPM seeks to fill the gaps of research thus far and build a consistent method for motivating behavior through fear appeals while assessing occurrences where the fear appeals fail.

Most notably, the EPPM focuses on expanding the work of Leventhal (1970), which primarily centered on danger and fear control frameworks. The aforementioned danger control processes discussed in the EPPM model were the primary focus of fear appeals research, however they neglected to properly assess the fear control (or message rejection) reactions to fear appeals. Rogers (1975) provides evidence that the concept of emotional responses to fear have not been properly incorporated into new fear appeal models; this fact served as motivation for the EPPM.

Fear Appeals Ethics. Foundationally, fear appeals are designed to scare people into an appropriate behavior. According to Hill et al. (1998), “Several generations of health educators have often uncritically accepted as near holy writ that you should not try

to scare people into healthy practices" (p. 5). This brings to light the question of whether the aversion to fear appeals for a time period was due to empirically sound research, or simply a scholarly aversion to dealing with the "gory" and a preference to focus on the "nice." Thesenvitz (2000) offers evidence that when utilized appropriately, "gory" or "hard-hitting" messages can play a vital role in health communication campaigns. This thesis seeks to utilize the newly supported use of fear tactics in health communication, coupled with the detailed tactics of the EPPM to encourage healthy skin behaviors in an effort to avoid skin cancer.

Message Construction

To effectively craft messages that evoke the desired danger control emotions from the audience, the tactics and methods for evoking fear and efficacy must be properly implemented. The first step in a fear appeal is to simply state the problem by presenting the negative consequences of a behavior (e.g., overexposure to U.V. rays) (Keller & Block, 1996). Following the presentation of the problem, Hovland, Janis, and Kelley (1953) suggest offering a solution that includes endorsed actions to avert the threat. Several areas could potentially undercut the appeal for either a low or high level of fear. For instance, if a problem is not perceived by the audience to be serious, he or she will not take the time to consider a recommended action; conversely, if a fear appeal is too high and harmful consequences seem overly severe, denial will occur and the recommended actions will still not be considered. Fear appeals on both high and low ends of the fear spectrum should not oversell or undersell the severity of the threat. An overly low fear appeal can be equally as ineffective as an overly threatening message (Keller &

Block, 1996).

Historically, most fear appeal models emphasize long-term physical harm instead of short-term cosmetic or social harm. These risks may be operationalized through cancer scares or imminent death. Logically, adolescent audiences struggle to relate with long-term risks because they seem too far away, and this age group naturally holds a "nothing can hurt me" attitude. Adolescents often view themselves as immune to physical harm (Smith & Stutts, 2006). Romer and Jameison (2001) supported this idea in a study that centered on teen smoking. Generally, adolescents held the belief that even though they thought 60% of adult smokers would die, only 25% of them considered their own smoking problematic or threatening; the authors held that adolescents underestimate risk and overestimate the ease of quitting. However, short-term, cosmetic-related fear appeals are very effective with the adolescent age group because these focus on the effects of daily life and interaction (Smith & Stutts, 2006). Additionally, in relation to this age bracket, Schoenbachler and Whittler (1996) claim that social threats are more effective than physical threats.

Investigations determining the impact of pictures in fear appeal messaging have been very limited. Stephenson and Witte (1998) attempted the use of pictures in their study on skin cancer based on the foundational research that "vivid" information is more retainable to the human brain than plain information. They further explain and define "vivid" as being emotionally interesting and provoking (Nisbett & Ross, 1980). However, Stephenson and Witte found that pictures were not necessarily as effective as they had hoped. Pictures can be included in the campaign messaging but seem to provide an

aesthetic, design contribution rather than actually deepening the effect of the fear appeal. While these results do not indicate overwhelming success for the use of images in skin cancer prevention messaging, researchers should not discount the idea that carefully chosen images could provide emotional stimulation for the audience. As with many components of fear appeals research, the use of imagery as a fear tactic may need augmentation and adjustment or may serve as a supporting factor rather than a lynchpin in the fear appeal.

For the purposes of this thesis, the importance of vivid imagery will be implemented in the messaging. In accordance with the recommendations of Keller and Block (1996), the issue will be presented to the audience with the recommended course of action attached to allow for appropriate amounts of efficacy. However, the vivid nature and relevancy of the threat will be adjusted to accommodate testing for both high and low fear appeals. Additionally, since this study will be conducted on a college campus, the considerations of cosmetic harm versus long-term harm will be incorporated into the fear appeals. Audiences that will be involved in this study may be influenced more heavily by immediate concerns (e.g., skin damage, discoloration, etc.) than long-term health effects (e.g., cancer, death).

Summary and Research Question

The EPPM provides a framework for presenting health-related fear appeals to an audience with a coordinated means to examine the response. According to the model, manipulated levels of threat (evoking the emotion of fear) and efficacy should evoke one of three responses from an audience: no response, danger control, or fear control. In order

to encourage an audience to accept recommended health responses, the fear appeal would need to scare the audience enough to seek an outlet to avoid the threat and then provide a recommended action that seems accessible and feasible. Aristotle was well versed in understanding the balance between fear and efficacy. Aristotle said, "If there is to be of uncertainty, there must be some lurking hope of deliverance, and that this is so would appear from the fact that fear sets (people) deliberating—but no one deliberates about things that are hopeless" (cited in Mongeau, 1991, p. 101).

While the EPPM has been tested across many health-related scenarios, the applicability of the theory needs to be examined further. Stephenson and Witte (1998) conducted the only study where the EPPM was applied to the topic of skin cancer; the study yielded results that support the major tenants of the model. To continue applying this theory in contexts, this study will also seek to apply the model within the context of skin cancer. Considering the American Cancer Society's (2012) statement that one in five Americans will develop skin cancer in their lifetime, the need for prevention techniques is high.

Ultimately, fear appeals will be designed to increase the perception of threat of skin cancer and offer recommendations to the audience for correspondingly reducing that threat through reduced exposure to U.V. rays. Witte's (1992) EPPM suggests that evoking danger control responses from the audience is the most effective way to gain message acceptance; this should be accomplished by producing high threat in coordination with high efficacy messages. Therefore, the following research question is posed:

RQ: How do threat and efficacy interact to influence participants' willingness to engage in protective skin behaviors?

CHAPTER THREE

METHOD

Participants

The participants consisted of 601 undergraduate students enrolled in a basic communication course at a large southeastern university. All participants hold, at minimum, a high school degree and have completed at least two months of college level coursework at the time of participation. The average age of participants was 19. The sample polled students from all class levels: freshman to senior, but the most frequent year in school was freshman. The sample contained 250 women, 346 men, and 5 participants did not denote a gender.

Manipulation

The independent variables for this study were fear and efficacy. The independent variables were combined to create four different message types: high fear/high efficacy, high fear/low efficacy, low fear/high efficacy, low fear/low efficacy. The variables were manipulated in the messages that were presented to respondents. The different types, severity, and graphic nature of language used led to the creation of high and low levels of fear and efficacy. To express high fear, the messages contained phrases such as, "cosmetic alterations are often early signs of cancer," "the second most common cancer in women aged 20 to 29," and "it is having a severe impact on young people today." Conversely, low fear will be expressed by saying, "some people spend enormous amounts of time in the sun and actually never contract skin cancer," "be cautious of the risks, but don't over react." The threat messages focused on: a) the participant groupings'

current susceptibility to skin cancer, b) the cosmetic concerns associated with skin cancer, and c) the potential impact of skin cancer.

Varying levels of encouraging and supportive language were used to craft high and low levels of efficacy. Efficacy messages highlighted how effective sunscreen can be in preventing skin cancer, as well as the ease at which it can be used on a daily basis. Additionally, efficacy measures encouraged participants to avoid direct, consistent exposure to the sun during the hottest parts of the day. The measures did not require that the participants avoid the sun altogether, but that they take a more careful and sensible approach to sun exposure. The low efficacy messages discuss the social impact of avoiding the sun and the impossibility of reversing damage already done to the participants in the past 20 to 25 years, suggesting that avoiding the sun now will not help with already damaged skin. High efficacy was expressed through language such as, "the great news is you can easily prevent yourself from contracting this disease," and "the disease is preventable through a few simple measures." Low efficacy was conveyed through these phrases: "this means no more lazy days at the beach or lake," and "you may end up frustrated." Additionally, two fear appeals were supplemented with a graphic image of sun damage. These two supplementary samples will be used to determine the impact of visual images in fear appeals. See Figure 1 below for narratives. Information for the composition of these messages was taken from the Skin Cancer Foundation (2013) and the American Cancer Society (2012). Figure 1.3 below outlines the text in each message.

Procedures

The experiment took place in an undergraduate classroom after securing IRB approval. Respondents were randomly assigned to one of four messages regarding skin cancer. Approximately 150 participants were grouped into each message scenario. Through the written messages, participants were exposed to one of the four fear appeals with varying levels of efficacy and threat. Prior to reading the messages, participants were informed that they were "evaluating messages for the University's skin cancer advertisement campaign" and that their input would be used for further developing the messaging and tactics of the campaign.

The respondents were asked to read the assigned message carefully. After reading the information, they were asked to respond to questions regarding the messages. The respondents were guaranteed anonymity; no identifying information was written on the surveys. After each individual completed the process in full, he or she was offered a one-page fact sheet with information regarding skin cancer prevention from both the American Cancer Society and the Skin Cancer Foundation as an added benefit for participating in the study.

Measurement

The dependent variables were *attitude* and *intention* as they relate to sunscreen and overexposure. Healthy skin behaviors as defined within the confines of this experiment are using sunscreen appropriately (over SPF 15 and re-application) and avoiding overexposure to U.V. light, both natural and artificial. Attitude was used to

determine if an individual has a positive or negative sentiment toward implementing the preventive health measure. According to this study, if the participants have a positive attitude toward sunscreen and overexposure protection, then they are enacting danger control responses and will participate in the preventive measures. However, if they have a negative attitude, they are dismissing the message and will not implement the suggested behavior. Similarly, intention is the audience's plan to actually take steps toward implementing the behavior. Intention is more tangible than attitude, but both are important factors in determining an individual's likelihood to participate in the suggested protective health measures.

Attitude toward Protective Skin Measures. Attitude was measured using a combination of questionnaire items. The first half of the survey utilized 16 Likert-type scale items with eight items that seek to determine attitude toward the protective skin measures of sunscreen and eight items that target attitude toward avoiding overexposure to U.V. rays. The participants responded to the questionnaire items by marking a response ranging from 1, *strongly disagree*, to 7, *strongly agree*. The questions that measure attitude are derived from a version of Stephenson and Witte (1998). Communication with Stephenson indicated that the measures needed adjustment as, in hindsight, he realized modifications would be beneficial to the outcome of the study. Thus, the initial concept of the measures was used to formulate and refine items for this study. Furthermore, Stephenson and Witte indicated that positive attitude measures would result in danger control responses; danger control insinuates that participants will implement recommended responses.

Examples of statements that assess audience attitude include: “Avoiding overexposure to the sun is a fairly easy task,” and “I think that avoiding overexposure to the sun is inconvenient.” Witte (1998) conducted a study using the Extended Parallel Process Model to motivate individuals toward protective health behaviors. While the survey instrument is not the same, the concept of the manipulation of attitude toward a relevant behavior is transferable. This study yielded a high reliability value of .89, thus indicating that the attitude and intention variables of the EPPM are reliable if measured properly and sampled with an appropriately sized audience.

Intention toward Protective Skin Measures. Similar to attitude, intention was measured using questionnaire items. The survey utilized 16 Likert-type scale items with seven items that identify intention toward sunscreen use and nine that identify intention toward overexposure to U.V. rays. The participants responded to the questionnaire items by marking a response ranging from 1, *strongly disagree*, to 7, *strongly agree*. Similar to the attitude portion, these questions were also loosely modeled from the survey instrument supplied by Stephenson from his co-authored work with Witte in 1998. Intention is an important component of this study because it indicates whether or not an individual will actually carry out recommended behaviors. Since this study does not allow for time lapse and follow-up questioning, this is the most effective way to measure the effects of the fear appeals.

Examples of statements that gauge audience intention are: “I intend to avoid indoor tanning to prevent getting skin cancer,” “I am not planning to use sunscreen to prevent getting skin cancer,” and “I intend to begin taking suggested precautionary

measures to prevent getting skin cancer." In the study mentioned previously by Witte (1998) intention of implementing condom usage was a measured item on the survey instrument. In this instance, alpha reliability was extremely high at .98. This reliability value is promising in the process of implementing the concepts of the EPPM into a survey instrument aimed at protective skin behaviors.

Manipulation Checks. The survey contained manipulation check items, adapted from Sprinkle et al. (2006) to assess participants' perceptions of the campaign messaging's effectiveness in conveying fear and efficacy. Participants were asked to evaluate the extent to which they perceived the health message used fear to motivate the use of protective measures to prevent getting skin cancer on two 7-point bipolar scales using these anchors: *the message used a great deal of fear, the message used no fear at all*, and *the message was frightening, the message was not frightening*. Similarly, respondents were asked to evaluate the extent to which they perceived the health message provided information that would help them use protective measures to prevent getting skin cancer on two, 7-point bipolar scales using these anchors: *the messages were helpful, the messages were not helpful at all*, and *the messages will make it easy for me to prevent getting skin cancer, the messages will not make it easy for me to prevent getting skin cancer*.

Pilot Study

A pilot study was conducted to test the interaction effects in regards to attitude and intention. Four factorial ANOVAs were conducted to explore significant interaction effects between fear and efficacy and attitudes and intentions of sunscreen and

overexposure. In terms of attitude about sunscreen use, the results of the factorial ANOVA revealed a non-significant interaction effect, F (1, 102) = .441, p > .05, η^2 = .63. Fear and efficacy manipulations did not significantly affect attitudes about sunscreen use, however, the data did indicate that high levels of efficacy in combination with low levels of fear produce the highest levels of positive attitudes about sunscreen use. In terms of attitude about overexposure, the factorial ANOVA revealed a non-significant interaction effect as well, F (1, 102) = .020, p > .05, η^2 = .51. Similarly, attitudes about overexposure were not affected. Overall, manipulations of fear and efficacy did not cause a statistically significant interaction on attitudes about protective skin behaviors. The results of the factorial ANOVA related to intention about sunscreen also revealed a non-significant interaction effect, F (1, 102) = .92, p > .05, η^2 = .34. The results of the factorial ANOVA related to intention about overexposure revealed a non-significant interaction effect as well, F (1, 102) = .28, p > .05, η^2= .60. Overall, manipulated levels of fear and efficacy did not have any interaction effect with intention toward protective skin behaviors. As stated previously, the pilot study likely had a non-significant interaction effect due to the low sample size and potential manipulation issues in messaging. For this thesis, the sample size was increased and messaging better targeted the audience under consideration according to Smith and Stutts' (2006) suggestions for fear appeals in young adults.

Following non-significant manipulation checks in the pilot study, the fear and self-efficacy measures were reworded to better target the age and gender of the population under consideration. The messages required a stronger focus on the

immediate, cosmetic consequences of overexposure to U.V. rays because skin cancer seemed like a too-distant concern and was leading to avoidance strategies by participants.

Data Analysis

A 2 (high fear vs. low fear) x 2 (high efficacy vs. low efficacy) factorial ANOVA was conducted to explore possible main and interaction effects. The alpha level was set at .05.

CHAPTER FOUR

RESULTS

This chapter provides the results for this thesis. The results examine how varying levels of fear and efficacy appeals affect participant attitude and intention toward protective skin behaviors. A 2 (High Fear/Low Fear) x 2 (High Efficacy/Low Efficacy) factorial ANOVA was conducted to explore possible main and interaction effects.

Manipulation Checks

Two ANOVA procedures were calculated to determine whether the manipulations of fear and efficacy were reliable and valid. The first manipulation check addressed the level of fear evident in the message. A significant main effect for the first manipulation fear check did emerge, F (1, 594) = 5.02, $p < .05$, $\eta^2 = .26$. Participants exposed to high fear messages (M = 8.67; SD = 2.51) reported significantly higher perceived fear than those exposed to low fear messages (M = 6.61; SD = 2.63). The second ANOVA was run on the efficacy manipulation check; it tested the mean differences in perceptions of efficacy in skin cancer messages between groups. A significant main effect for this manipulation check emerged, F (1, 594) = 4.85, $p < .05$, $\eta^2 = .28$. The students exposed to high efficacy messages (M = 10.48, SD = 2.16) reported significantly higher in perceived efficacy than those exposed to low efficacy messages (M = 9.58, SD = 2.51). Overall, the efficacy manipulation checks were successful. Both variables were manipulated effectively to evoke the desired reactions of fear and efficacy from the participants.

Interaction Effects

The tenants of the EPPM suggest that the interaction of high fear and high efficacy would result in increased protective skin behaviors. The foundation of this thesis, the EPPM, indicates that high threat, high efficacy messages would produce higher rates of message acceptance and attitude toward skin protection measures (sunscreen use and U.V. exposure) than high threat, low efficacy messages. The research question in this thesis sought to determine the outcomes and interaction effects of the differing variables. The results of the factorial ANOVA revealed a non-significant interaction effect, F (1, 594) = 2.28, $p > .05$. Fear and efficacy in combination did not significantly affect attitudes about sunscreen use. In terms of attitude about overexposure, the factorial ANOVA revealed a non-significant interaction effect as well, F (1, 594) = 3.59, $p > .05$.

Similarly, following the EPPM, the interaction effect of high fear and high efficacy should result in increased protective skin behaviors. In particular, high threat, high efficacy messages would produce higher rates of message acceptance and intention toward skin protection measures (sunscreen use and U.V. exposure) than high threat, low efficacy messages. The results of a factorial ANOVA related to intention about sunscreen revealed a non-significant interaction effect, F (1, 594) = .07, $p > .05$. The results of the factorial ANOVA related to intention about overexposure also revealed a non-significant interaction effect, F (1, 594) = .877, $p > .05$.

Messages with images should hypothetically lead to stronger levels of threat, and thus higher rates of message acceptance. This supports the idea that images increase the threatening nature of a message. However, both scenarios above also indicate that despite

increased levels of fear, efficacy levels are the only factor that impact attitude and intention change.

Main Effects

Analysis of the main effects indicates that high levels of efficacy affect attitudes about sunscreen use when viewed separately from fear, F (1, 594) = 23.72, $p < .05$. Similarly, attitudes about overexposure were affected by high levels of efficacy on their own, F (1, 594) = 22.76, $p < .05$. Both tests involving attitude did not reveal an interaction between fear and efficacy that impacted attitudes about sunscreen and overexposure. The analyses do suggest that efficacy on its own is powerful in affecting attitudes about sunscreen and overexposure. This indicates that high levels of efficacy are more impactful on attitude and intention than the combination of high levels of fear and efficacy.

Similar to the main effects for the aforementioned attitude variable, analysis of the data indicates that efficacy without the influence of fear, positively influences intention toward sunscreen use, F (1, 594) = 6.59, $p < .05$. Similarly, efficacy on its own positively influences intention toward overexposure, F (1, 594) = 6.65, $p < .05$. This again indicates that high levels of efficacy act as a stronger motivation for intention change than high levels of fear and efficacy in combination. This is not in line with the tenants of the EPPM.

In summary, fear and efficacy did not have any interaction effect in regards to attitude or intention toward protective skin behaviors. However, efficacy does have a strong effect on intention toward sunscreen use and overexposure. The suggested results

of the EPPM are not directly supported because fear and efficacy in combination do not affect attitude and intention toward protective skin behaviors. In all four scenarios of attitude and intention involving sunscreen and overexposure, efficacy has a strong influence on behavior in every scenario.

CHAPTER FIVE

DISCUSSION

This thesis sought to understand the application of the EPPM and the effectiveness of fear appeals in skin cancer prevention. Specifically, the questions in this study examined the interaction of high threat and high efficacy messages in relation to acceptance and intention toward skin protection measures compared to combinations of low threat and low efficacy. Additionally, messages with images should lead to stronger levels of threat, thus higher rates of message acceptance. These hypotheses were directly derived from the EPPM, which posits that high amounts of fear and efficacy result in message acceptance and increased attitude and intention toward protective behaviors (Witte, 1992).

Theoretical Implications

Contrary to the expectations of this study, efficacy alone produced higher message acceptance in every scenario, while fear did not result in any levels of message acceptance. The expectation was that the combination of high fear and high efficacy would evoke enough fear in the participant to motivate the desired behavior with the support of increased efficacy to motivate acceptance and intention. The results were not entirely consistent with the tenets of the EPPM. After conducting the study, results indicated that efficacy alone produced higher message acceptance in every scenario: attitude toward sunscreen, attitude toward U.V. exposure, intention toward sunscreen, and intention toward U.V. exposure. Fear did not produce any message acceptance, but efficacy as a separate factor motivated protective skin behavior each time.

While these findings are not entirely consistent with the EPPM, similar results have occurred previously in other studies. Sprinkle et al. (2006) found that efficacy appeals were the most effective behavior change motivator. The study examined fear appeals in the classroom and used the EPPM as a theoretical framework. Fear and efficacy together produced the most effective results of all the scenarios, but efficacy alone was even more effective than the combined outcome. Sprinkle reported that since efficacy alone produced increased attitude change toward projected outcomes more than any other scenario, the study results were not fully in line with the projections of the EPPM. The results of this study, considered with the results of the research conducted by Sprinkle et al. (2006), indicate a possibility that fear, while effective in some scenarios, may be second to purely efficacy-based scenarios. The audience in the Sprinkle study and this study were more inclined to participate in a behavior when motivated solely by efficacy appeals. Conceivably, the process of building confidence is enough to produce action rather than creating threat in coordination with confidence building. These outcomes in no way indicate that fear appeals, when used along with efficacy measures are ineffective, because research clearly indicates that in some scenarios this is the most successful option (Witte, 1992, 1994). However, in some situations the alternate of efficacy alone may be the most efficient course of action.

As indicated by the above analysis, this thesis highlights a need to examine the applicability of EPPM on individual health issues under consideration rather than as a whole. While many instances and research studies indicate that fear appeals and the EPPM are effective, this does not indicate that all health messaging requires the same

treatment. Similar to a doctor using different treatment methodologies for unique types of cancer, varying health campaigns may require various messaging tactics. For instance, the severity of and prior public knowledge of a health issue will greatly impact the content of a campaign. Take these two scenarios for instance: colon cancer prevention vs. this thesis. Colon cancer prevention requires routine testing starting at a certain age to catch polyps and other early signs of the disease. This type of health issue needs a great deal of tactical encouragement to motivate individuals to miss work, schedule their screening appointment, overcome the invasive nature of the procedure, and continue to routinely monitor their symptoms. This campaign is not asking people to alter their lifestyle; it is asking them to add an inconvenient test to their lives. Understanding the benefits of this practice and making the process as simple and easy as possible will encourage more individuals to participate. Partnerships with health care providers may be necessary to motivate behavior from an authoritative standpoint. However, colon cancer prevention campaigns are not prevalent in popular culture; to properly convey the severity and necessity of these issues, some fear and threat components may be necessary. Conversely, the model necessary for preventing skin cancer does not require as much detailed work convincing readers to undergo a difficult procedure; using sunscreen daily and having a yearly colonoscopy are two very different requests and most likely require varying approaches. The takeaway is to understand that health messaging is not "one size fits all." Just because fear appeals work with one audience in one scenario does not mean they will work across the board. Campaigners need to thoroughly examine

the necessary behavior changes and audience preconceptions while determining the best source of motivation, fear, efficacy, or both.

Fear appeals and the EPPM model have been successful in motivating health behaviors in many scenarios: AIDS prevention (Witte, 1994), teen pregnancy prevention (Witte, 1997), genital warts awareness (Witte, 1998), testicular self-exam (TSE) promotion for men (Mormon, 2000), to name a few. These individual instances of success do not mean that the model works flawlessly for all audiences and health issues. Two of the health concerns under consideration in the aforementioned studies were AIDS prevention and testicular cancer; both with very different risk levels and treatment outcomes than the health issue under consideration in this study. In order to craft an appropriate prevention message, the researcher needs to consider the intricacies and differences of each disease, as well as the target audience for the campaign.

Mormon (2000) claims that fear appeals are effective in motivating men to perform the TSE if they perceive the threat as severe and they have a tangible method to prevent the threat. However, Mormon goes on to say that the threat levels used in the study were only perceived as moderately threatening to the audience and did not reach the level of threat directed by the EPPM model, thus evoking some skepticism regarding how much threat is actually required in a health motivation scenario. Furthermore, the issue again surfaces regarding the necessity of fear in health promotion messages and whether some topics by nature lend themselves more to fear appeals than others. Mormon notes, "The topic of this study is cancer, in particular a cancer that strikes at the very core of masculinity itself, perhaps some topics have an inherent level of fear associated with

them such that a fear appeal message does not have to work very hard to convince a person to take action" (p. 105).

Of additional consideration is the susceptibility of fear due to audience demographics, specifically age. No doubt exists that younger populations process and absorb fear differently than older populations. In fact, Boster and Mongeau (1984) question the value of even using fear appeals when targeting young audiences. Mormon's (2000) study consisted almost entirely of 21-year-olds, while this study threatened loss of male genitalia and even death, high levels of threat were not evoked. Similarly in the current study, while highly threatening messages, such as eventual death from skin cancer, were used, the high levels of fear were still not enough to evoke behavior change. Efficacy was the only factor to substantially affect attitude and intention toward protective behaviors. Further research into the psychological impacts of fear appeals on younger populations needs to be conducted to determine the best tactics for motivating behavior.

Since early childhood, U.S. citizens are persistently exposed to media that perpetually presents agendas based on health issues and subsequent repercussions. This exposure makes it entirely plausible that the population has become desensitized and built up a fear control mechanism against such threatening messages. Undeniably the combination of the fear (whether it motivates behavior or not) and the efficacy provides a catalyst for behavior change in some scenarios, however, the common denominator in these studies seems to be that regardless of the questionable success of the fear component, efficacy consistently sparks positive change. While fear appeals sometimes

motivate behavior change, efficacy always provides an effective incentive for behavior alterations.

A secondary component to consider in relation to understanding the audience involves the background and racial history of the population under consideration. Several studies, including Witte et al. (1998), have been conducted involving African populations. In these scenarios, researchers need to consider the ethnicity differences between an adolescent in Kenya and an adolescent in the United States. Most college-age students have learned about STD prevention and skin cancer since enrollment in the public school system, not to mention the bombardment of health-related fear messages that the average American is exposed to on a regular basis. Conversely, fear appeals are a new concept and are less pervasive to several of the populations of Witte's studies. This exposure differentiation could make a substantive contribution in the effectiveness and participant response.

These unpredictable outcomes based on age and ethnic differences contribute to the trend of "confounding and inconsistent" results of fear appeals research. According to Boster and Mongeau (1984) and Witte and Allen (2000), the driving concept behind the EPPM is that the higher the threat to personal health, the greater the odds of participant response. Where this study veers from the EPPM standard is that the participants noted that they felt threatened by the skin cancer messages but were not motivated to participate in protective measures. This outcome circles back to the pattern of inconsistent results based on age and other demographic factors. In this particular scenario, the combination of cultural desensitization to health threats, high levels of pre-existent knowledge of the

disease (something very commonly discussed, i.e., skin cancer), combined with high levels of self-efficacy-related messages could override the need for the threat component of the EPPM.

A need exists to assess the effectiveness of the EPPM within varying contexts, including the current health-related knowledge of participants, susceptibility to the health issues, and the current health of the participant. While the EPPM is clearly effective in many scenarios, there may be a common denominator between either the participants or health issue under consideration that allowed for the effective manipulation of the fear component of the study with a correlating behavioral outcome. Determining that common factor would allow researchers to establish if the best course of action involves fear appeals in coordination with self-efficacy messaging or just self-efficacy messaging alone.

Practical Implications

From a societal standpoint, it is necessary to consider the effect that media has on health perceptions, particularly related to younger populations. Skin cancer is a topic of conversation from a very young age. A variety of health campaigns and dermatological ads constantly address the issue, especially in the summer months. The topic is so pervasive that popular "fashion and trend" magazines even cover the issue (Booth, 2013. This constant discussion of the subject could have taught Americans to not fear skin cancer but just to manage it through appropriate measures. American society notes the disease as something that poses a serious threat but can cope with the fear through proactive prevention measures.

While this concept of solely using efficacy-based messaging does not fit within the predetermined confines of the EPPM, this tactic could be a positive moment in health-based research. If American society has conditioned its youth to not fear skin cancer, but to be open and willing to participate in attitude and behavioral changes in regards to education about prevention, then that is a major win in the health promotion world. Why make people afraid if it is unnecessary? If building self-efficacy and teaching positive health behaviors is more effective than scaring audiences, then why not take that route? This could save time and money in the creation of health promotion campaigns, rather than investing resources trying to determine how to threaten and evoke fear in adolescent audiences, which we already know are very difficult to scare. That energy can be expended creating efficient and useful ways to build up the self-confidence to prevent the health issue in question. Fear only leads to anxiety, and after some time, avoidance. Self-efficacy can provide lasting confidence and help populations take control of their own health. Maybe Americans do not need to be scared to take care of themselves; maybe they just need to be encouraged and taught. In the realm of mass media, messaging should revolve around teaching the fundamental risks of a disease along with the personal action that can prevent that risk. Correlating education directly with a specific action item should alert individuals to health risks while simultaneously providing them with a method for prevention. These communications should be coupled with efficacy messaging to convey that the risks are easily preventable and that individuals are very capable of abiding by the recommendations.

These findings that indicate reliance on self-efficacy instead of fear could mean a new, psychologically healthier approach to health messaging. The side effects of creating fear in audiences involve anxiety, discomfort, and worry; these outcomes cannot be emotionally healthy. Self-efficacy building can allow for added confidence and individual growth. A new approach to health messaging research should take into consideration the preconceived notions that audiences already hold regarding a particular health condition. Perhaps audiences did not have enough basic information about testicular cancer, so they needed fear to jolt them into compliance, as in Mormon (2000). However, skin cancer may be such a well-covered topic that all audiences' need is action steps for prevention. They already know skin cancer is threatening so that only efficacy building can promote change.

These findings could have further implications for health promotion campaigns involving other diseases. If all health messaging was approached from an angle of confidence building rather than fear, messages would be more constructive and uplifting. An education piece could replace the fear components of many campaigns, after all, much of the fear messages do provide information about the issue but present it in a threatening manner. The self-efficacy components of health models are undeniably effective, yet the fear components have historically resulted in questionable outcomes. Why not eliminate the disputed portion and rely on the definitive? Health promotion campaigns need to start formulating messaging based on self-efficacy and encouragement rather than fear. Fear has the ability to turn people away, and research is rife with controversy over the ethical necessity and practical implications of fear appeals; however,

complaints do not exist about there being so much self-efficacy in a message that audiences were turned away. Audiences rarely dismiss positive encouragement. For instance, if a person is built up and properly educated about a topic, they have a foundation for understanding. Witte (1994) states that an overabundance of fear evokes danger control mechanisms that cause audiences to dismiss the message completely.

Methodological Implications

The biggest limitation of this study was the population, as college-age students are undeniably less susceptible to threat and fear (Boster & Mongeau, 1984). One notable study has recently been conducted to examine how to best target those audiences as marketers and health campaigners are realizing that the needs for audiences vary by age. Lennon, Rentfro, and O'Leary (2010) provided a deeper understanding of the way young adults process threatening information because such knowledge is becoming increasingly important to marketing firms responsible for tapping into this unique population. This research indicated that adolescent men were most impacted by a threatening message due to graphic content, but women were most impacted by perceived susceptibility to the threat. As is indicated by the ever-increasing body of research about this topic, the population involved in this study is very difficult to tap and understand. However, while fear appeals did not motivate behavior, this study did indicate that the participants perceived the threats; perhaps this is an issue of translating fear into motivated behavior change.

A second limitation of this study was the set-up of survey distribution. Participants were given the stimulus materials and surveys in a lecture hall setting. This

allows for uncontrollable distractions to participants, such as noise, chatter, lecturer interruptions, and participant questions. This experiment would be best conducted in a very controlled space with only a few participants at a time.

Thirdly, as with most EPPM health experiments, this study does not provide any data regarding the long-term effects of fear and efficacy messaging. Additionally, as Stephenson and Witte (1998) note in their skin cancer study, this model lacks a "true control" group. The comparisons are run between high and low levels of fear and efficacy, instead of comparing to a baseline measure. Conducting this experiment with a true control group may make the results more practical if a baseline were established.

The most notable limitation to this study is the generalizability of data. Respondents were reading print ads comprised of text and pictures; these findings are not necessarily generalizable to other areas, such as TV ads, where capabilities to produce more complex and lengthy dialogue are increased. While basic conceptual ideas may be transferable, in general, the scope of this project is only generalizable to print-related messaging.

Areas for Future Research

A study that only examines the effectiveness of efficacy on skin cancer compared to a control group would allow for results that are not affected by the fear variable. A study of this nature would be extremely valuable to the creation of future health promotions and would provide researchers with a baseline for determining if fear appeals are effective or even necessary. We know with some certainty that fear appeals do effectively motivate behaviors in some scenarios, but do they have to be the tactic of

choice? Self-efficacy measures could be equally as motivating without the negative aspects of threatening messages.

Additionally, a study that uses EPPM but focuses on an older population group could determine if fear appeals are wholly ineffective in relation to skin cancer or if the population age affects the impact that fear has on motivating attitude and intention adjustments. Skin cancer research may benefit from fear appeals on a different population age group. Potential exists for fear messages to motivate parents to protect young children from the sun instead of adolescents protecting themselves. The fact that in this study the age population did not respond positively to the fear variable does not mean that the fear variable would not be effective in different scenarios. Older populations have not been as overwhelmingly exposed to health campaign messages for the entirety of their lives as today's college-aged adolescents. Age gaps could mean different understandings or conceptions of the severity and susceptibility of a disease, thus entirely changing the reaction to message construction, as was suggested earlier in the case of the ethnicity differences causing varied reactions.

The sample did pose some limitations but could be used as a potential springboard for future studies. Future research should consider working in collaboration with a dermatology office or primary care provider that could grant the researcher access to a wider range of population ages and access to individuals with a vested interest in their health. Additionally, participants from this population may be willing to sign waivers for their children allowing the research to examine the effects of behavioral messaging on parent-child interactions in relation to skin cancer prevention. By expanding the study to

include larger populations the results could be more generalizable to a wider variety of audiences.

Additionally, several other theoretical approaches could be utilized to examine this data and provide further insight. Primarily, Social Cognitive Theory (SCT) could serve as an additional avenue for examining the behavior motivations behind attitude and intention augmentation with a specific focus on the self-efficacy components. SCT would provide helpful avenues for tailoring campaign messaging to the appropriate audience demographics. From an additional perspective, Protection Motivation Theory (PMT) would be useful for further examining the fear appeals component of this thesis and data. The process of examining threat appraisals and coping appraisals in coordination with self-efficacy motivations could provide some additional perspective to this data and further the understanding behind why individuals responded the way they did after perceiving a message as threatening. These complimentary theories open the door for additional exploration of the major concepts examined in this thesis and the potential for understanding the resulting data in a new light.

Clearly, additional research is needed to clarify many of the lingering questions from this thesis and other studies that involve the EPPM and fear appeal research.

Conclusion

This thesis sought to understand the application of the EPPM to skin cancer research and the effects of fear appeals on disease prevention. A need for this study was identified through the increasingly high rates of skin cancer incidence and death in the American population, as well as scholarly debate regarding the effectiveness and proper

use of fear appeals in preventive health campaigns. Witte's EPPM model has been successfully implemented in many health-based research scenarios, particularly of note to this study. Witte and Stephenson (1998) indicated that the model was effective in motivating protective skin behaviors. From those sources of information, this study examined how fear and self-efficacy messages in high levels affected the attitude and intention toward sunscreen use and U.V. exposure. Somewhat contrary to the expectations from the EPPM, self-efficacy messages in high levels without interference from fear messages produced the most positive results. High levels of efficacy in health messages produced attitude and intention change toward increased skin protection in every scenario. These results suggest that perhaps the "hit or miss" past history of fear appeals may still remain somewhat inconsistent. Fear, while definitively acknowledged by the participants, was not enough to evoke attitude or intention change. Upon considering the amount of baseline knowledge the U.S. adolescent population has been exposed to during the course of their lifetime, it is entirely possible that skin cancer is noted in their minds as a realistic fear but one that is entirely controllable through proper prevention measures, thus reinforcing the findings of this study. If skin cancer prevention can be promoted through self-efficacy building without the need for fear appeals, then what other changes could be made in the arena of health promotion? Maybe health communication practitioners, advertisers, and scholars are leaving fear appeals behind and striving toward prevention through education and confidence rather than anxiety and fear.

HIGH FEAR/HIGH EFFICACY	HIGH FEAR/LOW EFFICACY
Exposure to the sun's U.V. rays causes **unattractive skin damag**e and s**kin cancer and is currently the most common cancer in the United States**. Aside from the long-term, **potentially deadly** impact of overexposure, U.V. rays will **permanently alter the look of your skin**. Too much sun exposure can cause **sunspots, fine lines, wrinkles, freckles, moles, blotches, and premature aging**. In fact, these cosmetic alterations are often early signs of cancer. Skin cancer begins with marks on the surface of your skin that may seem to be innocent freckles, sunspots, or moles. In reality, these marks often transform into **crusty, ugly splotches that can disfigure your face due to the removal process**. Aside from the fact that skin cancer can damage your appearance, some forms are **fatal.** Skin cancer actually grows inward and infects organs as well as spreads across the skin. Skin cancer is **silent and deadly**, and often by the time a patient is diagnosed, treatment is not helpful. Melanoma, the deadly form of skin cancer, is the second most common cancer in women aged 20 to 29, so **college women are at a particular risk**. Stereotypically, men do not purposefully tan as much as women, but daily outdoor activities, sports practices, and other exposures add up over time – men actually have a **greater lifetime risk** of contracting the disease. In the past year, rates of skin cancer have increased in the 18 to 39 age bracket by 800 percent for women and 400 percent for men. We used to think of this disease as a concern for later in life, but it is having a **severe impact on young people every day.** While the thought of contracting skin cancer is terrifying**, the disease is extremely preventable** by taking a few **simple measures**. Applying sunscreen 15 minutes before exposure to the sun will help protect the skin from damage. Don't like the smell of sunscreen at school or work? No worries, most facial moisturizers contain an SPF to protect your face from cancer-causing rays; you can pick up a **reasonably priced bottle** at your local drug store; just switch your current moisturizer for a version containing SPF. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Do not subject yourself to	Exposure to the sun's U.V. rays causes **unattractive skin damag**e and s**kin cancer and is currently the most common cancer in the United States**. Aside from the long-term, **potentially deadly** impact of overexposure, U.V. rays will **permanently alter the look of your skin**. Too much sun exposure can cause **sunspots, fine lines, wrinkles, freckles, moles, blotches, and premature aging**. In fact, these cosmetic alterations are often early signs of cancer. Skin cancer begins with marks on the surface of your skin that may seem to be innocent freckles, sunspots, or moles. In reality, these marks often transform into **crusty, ugly splotches that can disfigure your face due to the removal process**. Aside from the fact that skin cancer can damage your appearance, some forms are **fatal.** Skin cancer actually grows inward and infects organs as well as spreads across the skin. Skin cancer is **silent and deadly**, and often by the time a patient is diagnosed, treatment is not helpful. Melanoma, the deadly form of skin cancer, is the second most common cancer in women aged 20 to 29, so **college women are at a particular risk**. Stereotypically, men do not purposefully tan as much as women, but daily outdoor activities, sports practices, and other exposures add up over time – men actually have a **greater lifetime risk** of contracting the disease. In the past year, rates of skin cancer have increased in the 18 to 39 age bracket by 800 percent for women and 400 percent for men. We used to think of this disease as a concern for later in life, but it is having a **severe impact on young people every day.** Clearly, avoiding harmful sun exposure is **both time consuming and expensive**. Sunscreen, while a useful method to prevent cancer, is a **frustrating and messy option**. Sunscreen can be **expensive and unpleasant** for everyday use, and the smell and greasy nature of the product are unappealing. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun.

purposeful repeated and lengthy tanning outdoors or indoor tanning beds; these are some of the leading causes of cancer in young adults. **Don't panic yet** − you do not have to avoid all tanning − a healthy glow is culturally desirable. Just avoid burning and **be cognizan**t of the amount of time spent in the sun. If tanning for an event, consider a lotion with tanning solution or a spray tan as an alternative. Skin cancer is deadly, but **the great news is that you can easily prevent** yourself from contracting this disease.	Avoid tanning indoors and outdoors. This means **no more lazy days** at the beach or the lake, and absolutely do not consider tanning bed treatments before a big event, such as a prom or wedding. You can avoid skin cancer, but by doing so, you may **end up being frustrated** and giving up some of your favorite pasttimes. As you begin trying to implement strategies to protect your skin, don't forget that **you cannot undue past damage.** You need to start protecting your skin now to avoid any further skin cancer risks.
LOW FEAR/HIGH EFFICACY Exposure to the sun has the **potential** to cause skin cancer, but **do not be alarmed. Four out of five Americans never contract this disease,** and not all forms of skin cancer are deadly. Besides, you are so young, chances are that the truly scary impact **of skin cancer will not affect you until much later in life,** if it ever does. Everything gives you cancer these days anyways, right? Freckles, blotches, and moles on the skin can be signs of cancer, but **only if** they are abnormal. Having a dermatologist regularly check these imperfections should keep you safe and allow for **diagnosis on the off chance that you have a pre-cancerous growth**. Some people spend enormous amounts of time in the sun and **actually never contract skin cancer**. People flock to beaches and tanning salons every year to tan their skin. Many people worry about the cosmetic damage due to sun overexposure, but this goes as with anything in life, **just use with moderation.** You obviously cannot avoid a few freckles and moles and you can cover those **minor flaws** with make up or clothing anyways. Be cautious of the risks, but **don't overreact** to the threat of skin cancer. While the thought of contracting skin cancer is terrifying**, the disease is extremely preventable** by taking a few **simple measures**. Applying sunscreen 15 minutes before exposure to the sun will help protect the skin from damage. Don't like the smell of sunscreen at school or work? No worries, most facial moisturizers contain an SPF to protect	**LOW FEAR/LOW EFFICACY** Exposure to the sun has the **potential** to cause skin cancer, but **do not be alarmed. Four out of five Americans never contract this disease,** and not all forms of skin cancer are deadly. Besides, you are so young, chances are that the truly scary impact **of skin cancer will not affect you until much later in life,** if it ever does. Everything gives you cancer these days anyways, right? Freckles, blotches, and moles on the skin can be signs of cancer, but **only if** they are abnormal. Having a dermatologist regularly check these imperfections should keep you safe and allow for **diagnosis on the off chance that you have a pre-cancerous growth**. Some people spend enormous amounts of time in the sun and **actually never contract skin cancer**. People flock to beaches and tanning salons every year to tan their skin. Many people worry about the cosmetic damage due to sun overexposure, but this goes as with anything in life, **just use with moderation.** You obviously cannot avoid a few freckles and moles and you can cover those **minor flaws** with make up or clothing anyways. Be cautious of the risks, but **don't overreact** to the threat of skin cancer.Clearly, avoiding harmful sun exposure is **both time consuming and expensive**. Sunscreen, while a useful method to prevent cancer, is a **frustrating and messy option**. Sunscreen can

your face from cancer-causing rays; you can pick up a **reasonably priced bottle** at your local drug store; just switch your current moisturizer for a version containing SPF. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Do not subject yourself to purposeful repeated and lengthy tanning outdoors or indoor tanning beds; these are some of the leading causes of cancer in young adults. **Don't panic yet** − you do not have to avoid all tanning − a healthy glow is culturally desirable. Just avoid burning and **be cognizant** of the amount of time spent in the sun. If tanning for an event, consider a lotion with tanning solution or a spray tan as an alternative. Skin cancer is deadly, but **the great news is that you can easily prevent** yourself from contracting this disease.	be **expensive and unpleasant** for everyday use, and the smell and greasy nature of the product are unappealing. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Avoid tanning indoors and outdoors. This means **no more lazy days** at the beach or the lake, and absolutely do not consider tanning bed treatments before a big event, such as a prom or wedding. You can avoid skin cancer, but by doing so, you may **end up being frustrated** and giving up some of your favorite pasttimes. As you begin trying to implement strategies to protect your skin, don't forget that **you cannot undue past damage.** You need to start protecting your skin now to avoid any further skin cancer risks.

Appendices

Appendix A

Stimulus Materials

High Fear/High Efficacy

Exposure to the sun's U.V. rays causes unattractive skin damage and skin cancer and is currently the most common cancer in the United States. Aside from the long-term, potentially deadly impact of overexposure, U.V. rays will permanently alter the look of your skin. Too much sun exposure can cause sunspots, fine lines, wrinkles, freckles, moles, blotches, and premature aging. In fact, these cosmetic alterations are often early signs of cancer. Skin cancer begins with marks on the surface of your skin that may seem to be innocent freckles, sunspots, or moles. In reality, these marks often transform into crusty, ugly splotches that can disfigure your face due to the removal process. Aside from the fact that skin cancer can damage your appearance, some forms are fatal. Skin cancer actually grows inward and infects organs as well as spreads across the skin. Skin cancer is silent and deadly, and often by the time a patient is diagnosed, treatment is not helpful. Melanoma, the deadly form of skin cancer, is the second most common cancer in women aged 20 to 29, so college women are at a particular risk. Stereotypically, men do not purposely tan as much as women, but daily outdoor activities, sports practices, and other exposures add up over time – men actually have a greater lifetime risk of contracting the disease. During the past year, rates of skin cancer have increased in the 18 to 39 age bracket by 800 percent for women and 400 percent for men. We used to think of this disease as a concern for later in life, but it is having a severe impact on young people every day.

While the thought of contracting skin cancer is terrifying, the disease is extremely preventable by taking a few simple measures. Applying sunscreen 15 minutes before exposure to the sun will help protect the skin from damage. Don't like the smell of sunscreen at school or work? No worries, most facial moisturizers contain an SPF to protect your face from cancer-causing rays; you can pick up a reasonably priced bottle at your local drug store; just switch your current moisturizer for a version containing SPF. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Do not subject yourself to purposeful repeated and lengthy tanning outdoors or indoor tanning beds; these are some of the leading causes of cancer in young adults. Don't panic yet − you do not have to avoid all tanning − a healthy glow is culturally desirable. Just avoid burning and be cognizant of the amount of time spent in the sun. If tanning for an event, consider a lotion with tanning solution or a spray tan as an alternative. Skin cancer is deadly, but the great news is that you can easily prevent yourself from contracting this disease.

High Fear/Low Efficacy

Exposure to the sun's U.V. rays causes unattractive skin damage and skin cancer and is currently the most common cancer in the United States. Aside from the long-term, potentially deadly impact of overexposure, U.V. rays will permanently alter the look of your skin. Too much sun exposure can cause sunspots, fine lines, wrinkles, freckles, moles, blotches, and premature aging. In fact, these cosmetic alterations are often early signs of cancer. Skin cancer begins with marks on the surface of your skin that may seem to be innocent freckles, sunspots, or moles. In reality, these marks often transform into crusty, ugly splotches that can disfigure your face due to the removal process. Aside from the fact that skin cancer can damage your appearance, some forms are fatal. Skin cancer actually grows inward and infects organs as well as spreads across the skin. Skin cancer is silent and deadly, and often by the time a patient is diagnosed, treatment is not helpful. Melanoma, the deadly form of skin cancer, is the second most common cancer in women aged 20 to 29, so college women are at a particular risk. Stereotypically, men do not purposely tan as much as women, but daily outdoor activities, sports practices, and other exposures add up over time – men actually have a greater lifetime risk of contracting the disease. In the past year, rates of skin cancer have increased in the 18 to 39 age bracket by 800 percent for women and 400 percent for men. We used to think of this disease a concern for later in life, but it is having a severe impact on young people every day.

Clearly, avoiding harmful sun exposure is both time consuming and expensive. Sunscreen, while a useful method to prevent cancer, is a frustrating and messy option. Sunscreen can be expensive and unpleasant for everyday use, and the smell and greasy nature of the product are unappealing. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Avoid tanning indoors and outdoors. This means no more lazy days at the beach or the lake, and absolutely do not consider tanning bed treatments before a big event, such as a prom or wedding. You can avoid skin cancer, but by doing so, you may end up being frustrated and giving up some of your favorite pasttimes. As you begin trying to implement strategies to protect your skin, don't forget that you cannot undue past damage. You need to start protecting your skin now to avoid any further skin cancer risks.

Low Fear/High Efficacy

Exposure to the sun has the potential to cause skin cancer, but do not be alarmed. Four out of five Americans never contract this disease, and not all forms of skin cancer are deadly. Besides, you are so young, chances are that the truly scary impact of skin cancer will not affect you until much later in life, if it ever does. Everything gives you cancer these days anyways, right? Freckles, blotches, and moles on the skin can be signs of cancer, but only if they are abnormal. Having a dermatologist regularly check these imperfections should keep you safe and allow for diagnosis on the off chance that you have a pre-cancerous growth. Some people spend enormous amounts of time in the sun and actually never contract skin cancer. People flock to beaches and tanning salons every year to tan their skin. Many people worry about the cosmetic damage due to sun overexposure, but this goes as with anything in life; just use with moderation. You obviously cannot avoid a few freckles and moles and you can cover those minor flaws with make up or clothing anyways. Be cautious of the risks, but don't overreact to the threat of skin cancer.

While the thought of contracting skin cancer is terrifying, the disease is extremely preventable by taking a few simple measures. Applying sunscreen 15 minutes before exposure to the sun will help protect the skin from damage. Don't like the smell of sunscreen at school or work? No worries, most facial moisturizers contain an SPF to protect your face from cancer-causing rays; you can pick up a reasonably priced bottle at your local drug store; just switch your current moisturizer for a version containing SPF. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Do not subject yourself to purposeful repeated and lengthy tanning outdoors or indoor tanning beds; these are some of the leading causes of cancer in young adults. Don't panic yet − you do not have to avoid all tanning − a healthy glow is culturally desirable. Just avoid burning and be cognizant of the amount of time spent in the sun. If tanning for an event, consider a lotion with tanning solution or a spray tan as an alternative. Skin cancer is deadly, but the great news is that you can easily prevent yourself from contracting this disease.

Low Fear/Low Efficacy

Exposure to the sun has the potential to cause skin cancer, but do not be alarmed. Four out of five Americans never contract this disease, and not all forms of skin cancer are deadly. Besides, you are so young, chances are that the truly scary impact of skin cancer will not affect you until much later in life, if it ever does. Everything gives you cancer these days anyways, right? Freckles, blotches, and moles on the skin can be signs of cancer, but only if they are abnormal. Having a dermatologist regularly check these imperfections should keep you safe and allow for diagnosis on the off chance that you have a pre-cancerous growth. Some people spend enormous amounts of time in the sun and actually never contract skin cancer. People flock to beaches and tanning salons every year to tan their skin. Many people worry about the cosmetic damage due to sun overexposure, but this goes as with anything in life; just use with moderation. You obviously cannot avoid a few freckles and moles and you can cover those minor flaws with make up or clothing anyways. Be cautious of the risks, but don't overreact to the threat of skin cancer.

Clearly, avoiding harmful sun exposure is both time consuming and expensive. Sunscreen, while a useful method to prevent cancer, is a frustrating and messy option. Sunscreen can be expensive and unpleasant for everyday use, and the smell and greasy nature of the product are unappealing. Another important method for protecting yourself from skin cancer is to avoid overexposure to the sun. Avoid tanning indoors and outdoors. This means no more lazy days at the beach or the lake, and absolutely do not consider tanning bed treatments before a big event, such as a prom or wedding. You can avoid skin cancer, but by doing so, you may end up being frustrated and giving up some of your favorite pasttimes. As you begin trying to implement strategies to protect your skin, don't forget that you cannot undue past damage. You need to start protecting your skin now to avoid any further skin cancer risks.

Appendix B

Fear Appeals Photo Materials

Photo supplement for high threat stimulation.

This photo depicts a truck driver who had lifelong sun exposure to the right side of his face but not to the left—a real comparison of how much damage U.V. rays can cause.

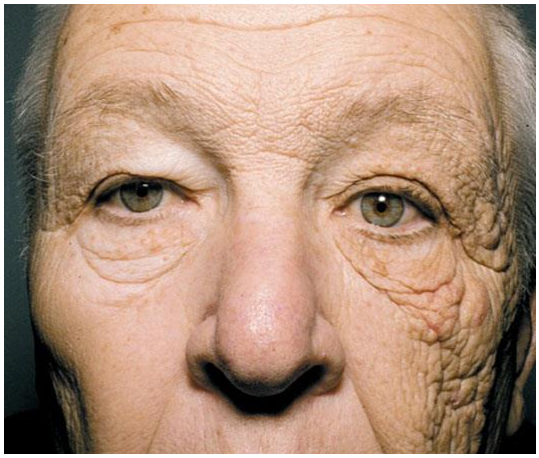

Photo supplement for low threat stimulation.

This photo depicts a woman with the culturally desirable effects of U.V. exposure.

Appendix C

Questionnaire

Please do not write your name on this questionnaire. Your responses should remain anonymous.

Please read the following health message very carefully. After you read the passage below, respond to the questionnaire items that follow.

Please circle the answer that most accurately reflects your response:

1. I am able to use sunscreen to prevent my getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

2. I am able to avoid overexposure to the sun to prevent my getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

3. Using sunscreen is a fairly easy task.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

4. Avoiding overexposure to the sun is a fairly easy task.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

5. I think that using sunscreen is an inconvenient task.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

6. I think that avoiding overexposure to the sun is inconvenient.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

7. Overall, I think that using sunscreen is a manageable task.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

8. Overall, I think that avoiding overexposure to the sun is a manageable task.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

9. I am capable of using sunscreen to prevent my getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

10. I am capable of avoiding overexposure to the sun to prevent my getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

11. My using sunscreen will keep me from getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

12. My avoiding overexposure to the sun will prevent me from getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

13. I think that sunscreen is effective in preventing skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

14. I think that avoiding overexposure to the sun is effective in preventing skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

15. Overall, I think that the benefits of using sunscreen far outweigh any inconvenience.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

16. Overall, I think that the benefits of avoiding overexposure to the sun far outweigh any inconvenience.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

17. I intend to use sunscreen to prevent my getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

18. I intend to avoid overexposure to the sun to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

19. I intend to begin using sunscreen or a moisturizer with an SPF as part of my daily routine to protect my skin from cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

20. I intend to wear sunscreen when exposing myself to the sun.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

21. I intend to consider the time of day when planning outdoor activities to avoid overexposure to the sun.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

22. I intend to wear sunscreen or SPF moisturizer when participating in outdoor activities involving high sun exposure.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

23. I intend to avoid sunburns by being mindful of my U.V. exposure to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

24. I intend to avoid sunburns by using sunscreen more frequently.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

25. I intend to stay out of the intense sun to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

26. I intend to avoid excessive tanning to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

27. I intend to avoid excessive indoor tanning to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

28. I am not planning to use sunscreen to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

29. I am not planning to avoid overexposure to the sun.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

30. I am not planning to avoid excessive tanning and burning.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

31. I intend to begin taking suggested precautionary measures regarding sunscreen application to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

32. I intend to begin taking suggested precautionary measures regarding excessive U.V. exposure to prevent getting skin cancer.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

Reflect back to the health message. Please evaluate the extent to which you perceived the health message used fear to motivate you to use protective measures to prevent getting skin cancer. Mark an "X" closest to the statement you find most accurate.

The message used:

33. A great deal of fear_____ _____ _____ _____ _____ _____ _____No fear at all

The message was:

34. Frightening _____ _____ _____ _____ _____ _____ _____ Not frightening at all

Reflect back to the health message. Please evaluate the extent to which you perceived the health message provided you with information that would help you use protective measures to prevent getting skin cancer.

The message was:

35. Very helpful _____ _____ _____ _____ _____ _____ _____ Not helpful at all

The message offers suggestions that:

36. Will make it easy _____ _____ _____ _____ _____ _____ _____ Will not make it easy for me to prevent getting skin cancer.
for me to prevent getting skin cancer.

Finally, we would like to get some information about you. Your answers to these questions will help us to better understand the opinions you express in other sections of the questionnaire. Please answer the following about yourself:

37. What is your age? _____

38. What is your sex? _____ Male _____ Female

39. In which state were you primarily raised? _____

40. What is your year in school?

_____ Freshman _____ Sophomore _____ Junior _____ Senior

41. What is your ethnic background/race?

_____ African American / Black
_____ Caucasian / White
_____ Asian / Pacific Islander
_____ American Indian / Alaskan Native
_____ Other (Please specify) _____)

Thank you for your assistance in this research project.
Your participation is greatly appreciated!

Appendix D

Debriefing Materials

Tips for Safe Fun in the Sun

Like most aspects of life, sun exposure has both positive and negatives. Enjoying time in the sun can be both peaceful and relaxing. Let's face it; most outdoor sporting activities also involve extended exposure to the sun. However, with skin cancer on the rise in the United States, we all need to learn how to safely enjoy the benefits of the sun without overexposing ourselves to harmful U.V. rays. Follows these tips to safely enjoy your time in the sun.

10 a.m. to 4 p.m. are the times of the day when the sun is at its strongest.

- Consider seeking shade if you are outside during the sun's peak hours.
- Schedule outdoor activities for early morning or late afternoon.

Do not burn

- Sunburn increases your risk for the most deadly type of skin cancer.
- When you feel as if your skin is becoming sensitive, go inside or cover up.

Avoid indoor and outdoor tanning

- When the skin darkens from a tan, this is the body's way to change your pigmentation to prevent damage.
- Tanning can lead to mutations in skin cell DNA.
- If you tan for Vitamin D exposure, consider eating salmon, drinking milk, or taking a dietary supplement.

Sunscreen

- Wear at least SPF 15 sunscreen every day.
- Consider purchasing moisturizers that contain sunscreen if the smell bothers you for daily use.

Still have questions? Visit these resources for more information or contact your local dermatologist.

- The Skin Cancer Foundation
  www.skincancer.org
- Center for Disease Control & Prevention
  http://www.cdc.gov/cancer/skin/basic_info/prevention.htm
- National Council on Skin Cancer Prevention
  http://www.skincancerprevention.org/

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